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FILE COVERS 1907 - 17 Feb 2004 VOL 140 ISS 8
FILE LAST UPDATED: 16 Feb 2004 (20040216/ED)

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=> s Suzuki coupling product
3643 SUZUKI
374230 COUPLING
24786 COUPLINGS
386215 COUPLING
(COUPLING OR COUPLINGS)
1036760 PRODUCT
1216871 PRODUCTS
1960127 PRODUCT
(PRODUCT OR PRODUCTS)
L17 11 SUZUKI COUPLING PRODUCT
(SUZUKI (W) COUPLING (W) PRODUCT)

=> d ibib abs 1-11

L17 ANSWER 1 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:603205 CAPLUS
 DOCUMENT NUMBER: 139:292343
 TITLE: Orthopalladated and -platinated bulky triarylphosphite complexes: Synthesis, reactivity and application as high-activity catalysts for Suzuki and Stille coupling reactions
 AUTHOR(S): Bedford, Robin B.; Hazelwood, Samantha L.; Limmert, Michael E.; Albißson, David A.; Draper, Sylvia M.; Scully, P. Noelle; Coles, Simon J.; Hursthouse, Michael B.
 CORPORATE SOURCE: School of Chemistry, University of Exeter, Exeter, EX4 4QD, UK
 SOURCE: Chemistry--A European Journal (2003), 9(14), 3216-3227
 CODEN: CEUJED; ISSN: 0947-6539
 PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
 DOCUMENT TYPE: Journal
 LANGUAGE: English

AB Bulky triaryl phosphite ligands undergo facile orthometalation reactions with palladium and platinum precursors; the resulting complexes were examined for their catalytic activity. Reaction of (Ar1O)2(ArO)P (4a,b,c) with [PdCl2(MeCN)2] or PdCl2 afforded ortho-metalated dimers [Pd[P(OAr1)2(OAr-κC)-κP]Cl]2 [5a, Ar = Ar1 = 2,4-tBu2C6H3; b, Ar = 2,4-tBu2C6H3, (OAr1)2 = CH2-2,2'-(6-tBu-4-MeC6H2O)2; c, Ar = 2,4-Me2C6H3, (OAr1) = CH2-2,2'-(6-tBu-4-MeC6H2O)2]. Complexation with platinum gave both monomeric cis-[Pt[P(OAr)2(OAr-κC)-κP][P(OAr)3]Cl] (9) and dimeric [Pt[P(OAr)2(OAr-κC)-κP]Cl]2 (6) complexes (Ar = 2,4-tBu2C6H3). Palladium complex 5a was gradually de-cyclopalladated by HCl/Et2O finally giving [Pd[P(OAr)3]Cl2]2 (11) and trans-[Pd[P(OAr)3]Cl2] (7a). Addition of phosphines, diphosphines, phosphites and sodium N,N-diethyldithiocarbamate to 5a and 6 gave corresponding monomeric complexes [M[P(OAr)2(OAr-κC)-κP](L)Cl] (L = phosphine or phosphite), [M[(OAr)2(OAr-κC)-κP](L2)]Cl (L2 = dppe, dppm, dppf) and [M[(OAr)2(OAr-κC)-κP](Et2NCS2)] (16, 17; M = Pd, Pt). Complexes 5a and 5b were examined for their catalytic activity in Suzuki and Stille coupling reactions, exhibiting extremely high turnover nos. in reaction of aryl bromides and chlorides with PhB(OH)2, and good activity in coupling of aryl chlorides with PhMe3Sn. They can also be used as catalysts for the coupling of alkylboronic acids. Di- and trialkyl phosphine adducts of one of the palladacycles shows very high activity in the Suzuki coupling of aryl chlorides and can also be used to good effect for the Stille coupling of these substrates. The role of the phosphite ligand in the Suzuki coupling of aryl chlorides seems to be one of increasing catalyst longevity by stabilization of the Pd0 resting state. The crystal structures of the palladacycles 5c and 16 were determined

REFERENCE COUNT: 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 2 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:155404 CAPLUS
 DOCUMENT NUMBER: 138:320957
 TITLE: Synthesis of Monodentate Ferrocenylphosphines and Their Application to the Palladium-Catalyzed Suzuki Reaction of Aryl Chlorides
 AUTHOR(S): Pickett, Tom E.; Roca, Francesc X.; Richards, Christopher J.
 CORPORATE SOURCE: Department of Chemistry, Cardiff University, Cardiff, CF10 3TB, UK
 SOURCE: Journal of Organic Chemistry (2003), 68(7), 2592-2599
 CODEN: JOCEAH; ISSN: 0022-3263
 PUBLISHER: American Chemical Society
 DOCUMENT TYPE: Journal
 LANGUAGE: English
 OTHER SOURCE(S): CASREACT 138:320957

AB Racemic and enantiopure (pS)-1-bromo-2-methylferrocenes **6** were prepared in 4 steps from 2-(4,4-dimethyloxazolinyl)ferrocene and (S)-2-(4-isopropylloxazolinyl)ferrocene, resp. (46 and 81% overall yield). Bromine-lithium exchange and addition of ClPR₂ gave the corresponding racemic or enantiopure 2-methylferrocenyl phosphine ligands 2-MeFcPR₂ **11** (R = Ph), **12** (R = Cy), and **13** (R = tBu) in 28-93% yield. Use of PCl₃ gave the C3-sym. phosphine (2-MeFc)3P **5** from (pS)-**6** (72% yield) but racemic **6** did not lead to the formation of triferrocenyl phosphines. Combination of **5** and Pd₂(dba)₃ gave an active catalyst for the Suzuki reaction of aryl chlorides, for example, 4-chlorotoluene and phenylboronic acid reacted at only 60° in dioxane (86% yield). Other examples are reported together with the use of **12** in the same protocol. The value of 211° for cone angle of **5** was estimated from the x-ray crystal data. The cone angles for **11-13** were calculated from the increments of the substituents as 167°, 184° and 192°, resp. The Lewis basicity of **11** and **12** was estimated from the carbonyl stretching frequency in trans-[Rh(CO)ClL₂], formed in situ. An anal. is made of the steric and electronic influences on ligand activity in the Suzuki reaction.

REFERENCE COUNT: 68 THERE ARE 68 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 3 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:134074 CAPLUS

DOCUMENT NUMBER: 138:321381

TITLE: The Role of Ligand Transformations on the Performance of Phosphite- and Phosphinite-Based Palladium Catalysts in the Suzuki Reaction

AUTHOR(S): Bedford, Robin B.; Hazelwood, Samantha L.; Limmert, Michael E.; Brown, John M.; Ramdeehul, Shailesh; Cowley, Andrew R.; Coles, Simon J.; Hursthouse, Michael B.

CORPORATE SOURCE: School of Chemistry, University of Exeter, Exeter, EX4 4QD, UK

SOURCE: Organometallics (2003), 22(7), 1364-1371

CODEN: ORGND7; ISSN: 0276-7333

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:321381

AB The ortho-metalated complex [{Pd(μ-Cl){κP,κC-P(OC₆H₂-2,4-tBu₂)(OC₆H₃-2,4-tBu₂)₂}]₂] reacts with phenylboronic acid hydrate and K₂CO₃ in dimethylacetamide to give oxo-bridged diaryl phosphite complex [Pd{κP,κC,κO-μ₂-O-P(O)(OC₆H₂-2,4-tBu₂)(OC₆H₃-2,4-tBu₂)(DMac)}] (**11**). When the reaction is repeated in DMF, the coupling product, 3,3',5,5'-tetra-tert-butyl-2,2'-biphenol (**12**) was isolated. The reaction of palladium dichloride with phosphinite PiPr₂(OC₆H₄-4-Et) in 2-methoxyethanol followed by recrystn. in the presence of ethanol gave the palladium complex of the transesterificated phosphinite ligand, trans-[PdCl₂{PiPr₂(OEt)}₂] (**14**). The mol. structure of **11**, **12** and **14** was confirmed by x-ray crystallog. To determine whether related solvolytic processes have an effect on catalytic activity, the performance of a range of catalysts with "hydrolyzed" and "nonhydrolyzed" ligands was assessed in the Suzuki coupling of aryl bromides. Palladium ortho-metalated dimethylbenzylamine and phosphite complexes with extra hydroxyphosphinite and secondary phosphite ligands, [Pd(C₆H₄CH₂NMe₂-κC,κN)(L₁-κP)] (**16**, L₁ = 6-hydroxy-6H-dibenzo[c,e][1,2]-oxaphosphorin), [Pd(L₂-κC,κP)Cl]₂ (**3e**, L₂ = (2,4-di-tert-butylphenyl)(methylenebis-2,2'-[6-tert-butyl-4-methylphenyl]) phosphite), and in situ formed [Pd(C₆H₄CH₂NMe₂-κC,κN)(L₂-κP)] and [Pd(C₆H₄CH₂NMe₂-κC,κN)(L₃-κP)] (L₃ = (hydroxy)(methylenebis-2,2'-[6-tert-butyl-4-methylphenyl]) phosphite) were tested as Suzuki coupling catalysts, showing moderate activity. In some cases it was evident that hydrolysis plays a significant role on the catalytic activity; however, this depends not only on the ligand, but also

on the combination of ligand and palladium precursor.

REFERENCE COUNT: 35 THERE ARE 35 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 4 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2003:18730 CAPLUS

DOCUMENT NUMBER: 138:385488

TITLE: Diastereoselective aldol reactions of furaldehyde using a chiral boronate as auxiliary: application to the synthesis of enantiomerically pure and highly functionalized 2,3-disubstituted furanyl alcohols

AUTHOR(S): Chan, Kin-Fai; Wong, Henry N. C.

CORPORATE SOURCE: Department of Chemistry and Central Laboratory of the Institute of Molecular Technology for Drug Discovery and Synthesis, The Chinese University of Hong Kong, Hong Kong, Peop. Rep. China

SOURCE: European Journal of Organic Chemistry (2003), (1), 82-91

CODEN: EJOCFK; ISSN: 1434-193X

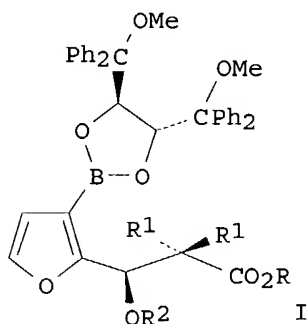
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:385488

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AB The aldol reactions of various ketene silyl acetals or lithium enolates with 2-furancarbaldehyde bearing (2R,3R)-1,4-dimethoxy-1,1,4,4-tetraphenyl-2,3-butanediyl boronate chiral auxiliary at 3-position of the furan ring (2, C₄H₂O-2-CHO-3-cyclo-(R,R)-BO₂[CHCPh₂(OMe)]₂) were studied. Metal-salt catalyzed addition of R₁2C:C(OR)(OSiMe₃) (3a) with 2 gave stereoisomeric mixture of silyl ethers with moderate predominance of the (R)-isomer I (4b, R = Et, R₁ = H, R₂ = SiMe₃), while the reaction of substituted ketene acetals 3b or 3c produced more diastereoselectivity in products 5b,c (I, R = Et, R₂ = SiMe₃ and H; R₁ = Me and R₁-R₁ = (CH₂)₅, resp.). Non-catalyzed addition of lithium enolate CH₂:C(OLi)(OR) (9a,b, R = Et or tBu) with 2 afforded hydroxy-derivs. 10b and 11b, resp., (shown as I, R₁ = R₂ = H). Lithium 1-cycloheptenolate was also reacted with 2 to give (R,R)-aldol product. It was found that (R) diastereoselectivity was more favorable than (S) diastereoselectivity and moderate diastereoselectivity was achieved. Some of the resulting aldol diastereomers were chromatog. separable by simple flash column chromatog. on silica gel, leading to optically pure aldol adducts. The absolute stereochem. of the aldol adducts were determined by x-ray crystallog. anal. Further transformation of the carbon-boron bond to a carbon-carbon bond was achieved in a Suzuki coupling reaction to furnish highly functionalized and enantiomerically

pure 2,3-disubstituted furyl alcs. One of the furyl alcs. was allowed to rearrange to hydroxypyranone in order to demonstrate possible applications of the developed methodol.

REFERENCE COUNT: 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 5 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:880461 CAPLUS

DOCUMENT NUMBER: 138:106811

TITLE: Highly Bulky and Electron-Rich Terminal Ruthenium Phosphido Complexes: New Donor Ligands for Palladium-Catalyzed Suzuki Cross-Couplings

AUTHOR(S): Planas, Jose Giner; Gladysz, J. A.

CORPORATE SOURCE: Institut fuer Organische Chemie, Friedrich-Alexander-Universitaet Erlangen-Nuernberg, Erlangen, 91054, Germany

SOURCE: Inorganic Chemistry (2002), 41(26), 6947-6949

CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:106811

AB Secondary phosphine complexes of the formula $[(\eta^5\text{-C}_5\text{H}_5)\text{Ru}(\text{L})_2(\text{PHR}_2)]^+ \text{BARF}^-$ are prepared from cationic ruthenium N2 complexes and PHR2 (L = PET3, 1/2 depe; R = Ph (a), t-Bu (b), Cy (c)). Addns. of t-BuOK or NaN(SiMe3)2 gave the phosphido complexes $(\eta^5\text{-C}_5\text{H}_5)\text{Ru}(\text{L})_2(\text{PR}_2)$ ((L)2 = (PET3)2 (5a-c), depe (6a,b)) in high NMR yields. These rapidly oxidize in air to give isolable RuP(:O)R2 species. Complex 5a is more basic than the rhenium analog $(\eta^5\text{-C}_5\text{H}_5)\text{Re}(\text{NO})(\text{PPh}_3)(\text{PPh}_2)$, and 6b is more basic than P-t-Bu3. Complexes 5a-c and 6b are effective ligands for palladium-catalyzed Suzuki reactions. The catalyst from 6b is nearly as reactive as that from the benchmark ligand P-t-Bu3.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 6 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:818524 CAPLUS

DOCUMENT NUMBER: 138:170339

TITLE: A new generation of air stable, highly active Pd complexes for C-C and C-N coupling reactions with aryl chlorides

AUTHOR(S): Schnyder, Anita; Indolese, Adriano F.; Studer, Martin; Blaser, Hans-Ulrich

CORPORATE SOURCE: Solvias AG, Basel, 4002, Switz.

SOURCE: Angewandte Chemie, International Edition (2002), 41(19), 3668-3671

CODEN: ACIEF5; ISSN: 1433-7851

PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 138:170339

AB High yields in important Pd-catalyzed reactions of aryl chlorides are obtained with complexes consisting of a palladacycle and a secondary phosphine which could be prepared in situ or isolated. Heck reaction of ClC6H4Me-4 with Bu acrylate, Suzuki coupling of phenylboronic acid with 4-chloroanisole, N-arylation of N-methylaniline and morpholine with ClC6H4R-4 (R = Me, MeO) and α -arylation of propiophenone with ClC6H4Me-4 were studied. Palladacycles bis(2'-dimethylaminobiphenyl-2-yl-N,C)di- μ -acetatodipalladium (1), bis(2-acetamidophenyl-C,O)di- μ -acetatodipalladium (3), bis[(2-dimethylaminomethyl)phenyl-C,N]di- μ -acetatodipalladium (4) were used as catalysts for the Suzuki and Heck coupling reactions after in situ treatment with sterically demanding secondary phosphines HPCy2, HPTBu2, HP(1-adamantyl)2 (HPAd2), HP(2-norbornyl)2 (HPNor2), 4,8-dimethyl-2-phospha-bicyclo[3.3.1]nonane (6),

2,4,6-triisopropyl-1,3,5-dioxaphosphorinane (7), along with tertiary analogs PCy₃ and PtBu₃. Reaction of [(L-C,N)Pd(μ-Cl)]₂ [8, L-C,N = bis(2'-dimethylaminobiphenyl-2-yl-N,C)] with HPNor₂, HPTBu₂, HPCy₂ and PCy₃ gave corresponding [(L-C,N)Pd(phosphine)Cl] complexes (9-12), which were isolated and used as catalysts for the Suzuki, Heck, N- and C-arylation coupling reactions. In general, comparison of HPCy₂ and PCy₃ revealed better yields in the case of the secondary phosphine. The isolated catalysts 9-12 are air-stable, and easy to handle. The catalysts formed in situ allow optimization of the reaction by variation of the palladacycle and phosphine components.

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 7 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:664742 CAPLUS

DOCUMENT NUMBER: 137:337633

TITLE: Palladium-Catalyzed Cycloalkylations of 2-Bromo-1,n-dienes with Organoboronic Acids

AUTHOR(S): Oh, Chang Ho; Sung, Hye Rhyun; Park, Su Jin; Ahn, Kyo Han

CORPORATE SOURCE: Department of Chemistry, Hanyang University, Sungdong-Gu, Seoul, 133-791, S. Korea

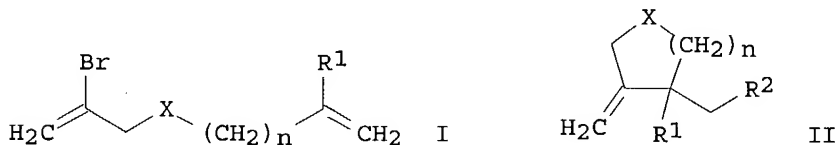
SOURCE: Journal of Organic Chemistry (2002), 67(20), 7155-7157 CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

GI



AB Alkylpalladium intermediates, formed via an intramol. Heck reaction of 2-bromo-1,n-dienes I [X = (EtO₂C)₂C, R₁ = H, Me, n = 1, 2; X = O, NTs, R₁ = H, n = 1], were successfully cross-coupled with various organoboronic acids R₂B(OH)₂ [R₂ = Ph, 4-(HOCH₂)C₆H₄, 3,5-Me₂C₆H₃, PhCH:CH, BuCH:CH, Me₃CCCH:CH] to give the corresponding methylenecycloalkanes or methylene-substituted heterocycles II in good to excellent yields. The optimal yields were achieved by the use of Cs₂CO₃ in EtOH with Pd(PPh₃)₄ as a catalyst, at concns. of 2-bromo-1,n-dienes I and organoboronic acids as 0.2 and 0.3 M (1.5 equiv), resp.

REFERENCE COUNT: 28 THERE ARE 28 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 8 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:657290 CAPLUS

DOCUMENT NUMBER: 138:153631

TITLE: Synthesis, characterisation and catalytic activity of metal complexes of neutral, unsymmetrical P/S ferrocenediyl ligands

AUTHOR(S): Gibson, Vernon C.; Long, Nicholas J.; White, Andrew J. P.; Williams, Charlotte K.; Williams, David J.; Fontani, Marco; Zanello, Piero

CORPORATE SOURCE: Department of Chemistry, Imperial College of Science, Technology and Medicine, South Kensington, London, SW7 2AY, UK

SOURCE: Journal of the Chemical Society, Dalton Transactions

(2002), (17), 3280-3289
CODEN: JCSDAA; ISSN: 1472-7773
Royal Society of Chemistry

PUBLISHER:
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 138:153631

AB Two asym. 1,1'-disubstituted ferrocenediyl ligands, 1-(diphenylphosphino)-1'-(methylthio)ferrocene (1) and 1-(diphenylphosphino)-1'-(mesitylthio)ferrocene (2) featuring phosphine and thioether substituents were conveniently synthesized and the coordination chemical of 1 was probed by reaction with transition metal reagents. With Group 10 metal and Rh(I) species, chelating complexes are formed in high yield and a monodentate bis-ligand complex with trans phosphorus ligation can also be synthesized using a Pd(II) species and three equivalent of 1. With [M(CO)5thf] (M = Cr, Mo or W), 1 forms a mixture of monodentate, P-bound pentacarbonyl and P/S-chelating tetracarbonyl products. The monodentate pentacarbonyl product can be converted into the chelating tetracarbonyl species via prolonged reflux in toluene. Crystal structures for nickel, palladium, platinum and tungsten complexes are reported. Redox potentials were determined by cyclovoltammetry for 1 and prepared complexes. Preliminary studies show that 1, in combination with Pd2(dba)3 precursors, can act as a catalyst for the Suzuki coupling reaction.

REFERENCE COUNT: 51 THERE ARE 51 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 9 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:649165 CAPLUS
DOCUMENT NUMBER: 137:353277

TITLE: Hydroboration-Suzuki cross coupling of unsaturated amino acids; the synthesis of pyrimine derivatives
AUTHOR(S): Collier, Philip N.; Campbell, Andrew D.; Patel, Ian; Taylor, Richard J. K.

CORPORATE SOURCE: Department of Chemistry, University of York, York, YO10 5DD, UK

SOURCE: Tetrahedron (2002), 58(30), 6117-6125
CODEN: TETRAB; ISSN: 0040-4020

PUBLISHER: Elsevier Science Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

OTHER SOURCE(S): CASREACT 137:353277

AB Hydroboration of protected allylglycines with 9-BBN followed by Suzuki cross coupling of the resulting organoboranes proceeded smoothly giving a range of new bis-homophenylalanine and related derivs. in good yields (9 examples, 53-64%). One of the **Suzuki coupling products** has been elaborated to give the N-Cbz-protected natural product pyrimine. The hydroboration-Suzuki coupling of vinylglycine derivs. was also studied but was less efficient than with the allylglycine derivs.; the best results were obtained using disiamylborane-DMS as the hydroborating agent.

REFERENCE COUNT: 64 THERE ARE 64 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 10 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:324745 CAPLUS
DOCUMENT NUMBER: 137:310962

TITLE: Iminophosphines: synthesis, formation of 2,3-dihydro-1H-benzo[1,3]azaphosphol-3-ium salts and N-(pyridin-2-yl)-2-diphenylphosphinoylaniline, coordination chemistry and applications in platinum group catalyzed Suzuki coupling reactions and hydrosilylations

AUTHOR(S): Doherty, Simon; Knight, Julian G.; Scanlan, Tom H.; Elsegood, Mark R. J.; Clegg, William

CORPORATE SOURCE: The Queen's University of Belfast, School of

SOURCE: Chemistry, Belfast, BT9 5AG, UK
Journal of Organometallic Chemistry (2002), 650(1-2),
231-248
CODEN: JORCAI; ISSN: 0022-328X
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:310962

AB The aprotic and protic bi- and multidentate iminophosphines 2-Ph₂PC₆H₄N:CR₁R₂ (R₁ = H, R₂ = Ph, 2a; R₁ = Me, R₂ = Ph, 2b; R₁ = H, R₂ = 2-thienyl, 2c; R₁ = H, R₂ = C₆H₄-2-PPh₂, 2d; R₁ = H, R₂ = C₆H₄-2-OH, 2e, R₁ = H, R₂ = C₆H₄-2-OH-3-But, 2f; R₁ = H, R₂ = CH₂C(O)Me, 2g) were prepared by the acid catalyzed condensation of 2-(diphenylphosphino)aniline with the corresponding aldehyde or ketone. Iminophosphine 2d can be reduced with Na cyanoborohydride to give the corresponding amino-diphosphine 2-Ph₂PC₆H₄N(H)CH₂C₆H₄-2-PPh₂ (2h). In the presence of a stoichiometric quantity of acid, 2-(diphenylphosphino)aniline reacts in an unexpected manner with benzaldehyde, salicylaldehyde, or acetophenone to give the corresponding 2,3-dihydro-1H-benzo[1,3]azaphosphol-3-ium salts and with pyridine-2-carboxaldehyde to give N-(pyridin-2-ylmethyl)-2-diphenylphosphinoylaniline, the latter of which was characterized by single-crystal x-ray crystallog., as its Pd dichloride derivative. The attempted condensation of 2-(diphenylphosphino)aniline with pyridine-2-carboxaldehyde to give the corresponding pyridine-functionalized iminophosphine resulted in an unusual transformation involving the diastereoselective addition of two equiv of aldehyde to give [1,2-dipyridin-2-yl-2-(o-diphenylphosphinoyl)phenylamino]ethanol, which was characterized by a single-crystal x-ray structure determination. The

bidentate iminophosphine 2-Ph₂PC₆H₄N:C(H)Ph reacts with [(cycloocta-1,5-diene)PdClX] (X = Cl, Me) to give [Pd{2-Ph₂PC₆H₄N:C(H)Ph}ClX] and the imino-diphosphine 2-Ph₂PC₆H₄N:C(H)C₆H₄PPh₂ reacts with [(cycloocta-1,5-diene)PdClMe] to give [Pd{2-Ph₂PC₆H₄N:C(H)C₆H₄PPh₂}ClMe] and each was characterized by single-crystal x-ray crystallog. The monobasic iminophosphine 2-Ph₂PC₆H₄N:C(Me)CH₂C(O)Me reacts with [Ni(PPh₃)₂Cl₂] in the presence of NaH to give the phosphino-ketoiminate complex [Ni{2-Ph₂PC₆H₄N:C(Me)CHC(O)Me}Cl], which was structurally characterized. Mixts. of iminophosphines 2a-h and a Pd source catalyze the Suzuki cross coupling of 4-bromoacetophenone with phenylboronic acid. The efficiency of these catalysts show a marked dependence on the Pd source, catalysts formed from [Pd₂(OAc)₆] giving consistently higher conversions than those formed from [Pd₂(dba)₃] and [PdCl₂(MeCN)₂]. Catalysts formed from neutral bi- and terdentate iminophosphines 2a-d gave significantly higher conversions than those formed from their monobasic counterparts 2e-f. Notably, under the authors' conditions the conversions obtained with 2a-c compare favorably with those of the stds.; catalysts formed from tris(2-tolyl)phosphine and tris(2,4-di-tert-butylphenyl)phosphite and a source of Pd. In addition, mixts. of [Ir(COD)Cl]₂ and 2a-h are active for the hydrosilylation of acetophenone; in this case catalysts formed from monobasic iminophosphines 2e-f giving the highest conversions.

REFERENCE COUNT: 73 THERE ARE 73 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L17 ANSWER 11 OF 11 CAPLUS COPYRIGHT 2004 ACS on STN

ACCESSION NUMBER: 2002:42558 CAPLUS
DOCUMENT NUMBER: 136:340432
TITLE: Synthetic chemistry: The key to successful organic synthesis is...
AUTHOR(S): Jones, William D.
CORPORATE SOURCE: Department of Chemistry, University of Rochester, Rochester, NY, 14627, USA
SOURCE: Science (Washington, DC, United States) (2002), 295(5553), 289-290
CODEN: SCIEAS; ISSN: 0036-8075

PUBLISHER: American Association for the Advancement of Science
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review. The research of Cho et al. (2002) is reviewed with commentary and 12 refs. The commentary discusses the preparation of an (cyclooctadienyl)(indenyl)iridium catalyst for the selective borylation of benzenes to give meta-substituted benzeneboronic acid pinacolates in high yield. The iridium catalyst is easily prepared in one step from readily available starting materials. Arenes are borylated selectively in the presence of chloro, fluoro, bromo, and iodo groups without the formation of **Suzuki coupling products**; methoxy and methoxycarbonyl groups are also tolerated. In the presence of the iridium catalyst and a palladium catalyst, tandem borylation and Suzuki coupling occurs to give biaryl coupling products and a polyphenylene polymer. The iridium borylation catalyst allows access to a wide variety of starting materials for Suzuki coupling reactions.

REFERENCE COUNT: 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

FILE 'REGISTRY' ENTERED AT 13:41:12 ON 17 FEB 2004

L1 0 S BORANE AND BUT-2-ENYL
L2 351 S BUT-2-ENYL
L3 0 S L2 AND B/ELS
L4 0 S BIS ALLYL BORANE
L5 STRUCTURE UPLOADED
L6 0 S L5
L7 0 S L5 FULL
L8 98 S BORANE AND ALLYL
L9 31 S L8 AND BIS
L10 STRUCTURE UPLOADED
L11 0 S L10
L12 0 S L10 FULL
L13 STRUCTURE UPLOADED
L14 11 F RNF
L15 0 S L13
L16 1 S L13 FULL

FILE 'CAPLUS' ENTERED AT 13:54:31 ON 17 FEB 2004

L17 11 S SUZUKI COUPLING PRODUCT

FILE 'CASREACT' ENTERED AT 13:55:25 ON 17 FEB 2004

L18 263 S SUZUKI/TI AND COUPL?/TI
L19 0 S L18 AND BORAN
L20 8 S L18 AND BORAN?

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=> d his

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FILE 'REGISTRY' ENTERED AT 13:41:12 ON 17 FEB 2004

L1 0 S BORANE AND BUT-2-ENYL
 L2 351 S BUT-2-ENYL
 L3 0 S L2 AND B/ELS
 L4 0 S BIS ALLYL BORANE
 L5 STRUCTURE UPLOADED
 L6 0 S L5
 L7 0 S L5 FULL
 L8 98 S BORANE AND ALLYL
 L9 31 S L8 AND BIS
 L10 STRUCTURE UPLOADED
 L11 0 S L10
 L12 0 S L10 FULL
 L13 STRUCTURE UPLOADED
 L14 11 F RNF
 L15 0 S L13
 L16 1 S L13 FULL

FILE 'CAPLUS' ENTERED AT 13:54:31 ON 17 FEB 2004

L17 11 S SUZUKI COUPLING PRODUCT

FILE 'CASREACT' ENTERED AT 13:55:25 ON 17 FEB 2004

L18 263 S SUZUKI/TI AND COUPL?/TI
 L19 0 S L18 AND BORAN
 L20 8 S L18 AND BORAN?

FILE 'CAPLUS' ENTERED AT 14:01:50 ON 17 FEB 2004

=> s suzuki/ti and coupl?/ti
 789 SUZUKI/TI
 111998 COUPL?/TI
 L21 505 SUZUKI/TI AND COUPL?/TI

=> s l21 and bora?
 99567 BORA?
 L22 50 L21 AND BORA?

=> d ti 1-50

L22 ANSWER 1 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Synthesis of C1-alkyl- and acylglycals from glycals using a B-alkyl
Suzuki-Miyaura cross coupling approach

L22 ANSWER 2 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Synthesis of novel halopyridinylboronic acids and esters. Part 4:
 Halopyridin-2-yl-boronic acids and esters are stable, crystalline partners
 for classical **Suzuki cross-coupling**

L22 ANSWER 3 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Polymer-Assisted Solution-Phase (PASP) **Suzuki Couplings**
 Employing an Anthracene-Tagged Palladium Catalyst

L22 ANSWER 4 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Synthesis of a dicyclobutylideneethane derivative via sequential
 palladium-catalyzed Miyaura borylation and **Suzuki**
coupling

L22 ANSWER 5 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI **Suzuki-Miyaura cross-coupling** reactions via
 hydroboration of 1,1-disubstituted alkenes with B-H -10-phenyl-9-
borabicyclo[3.3.2] decane

L22 ANSWER 6 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Regiospecific **Suzuki coupling** of 3,5-
 dichloroisothiazole-4-carbonitrile

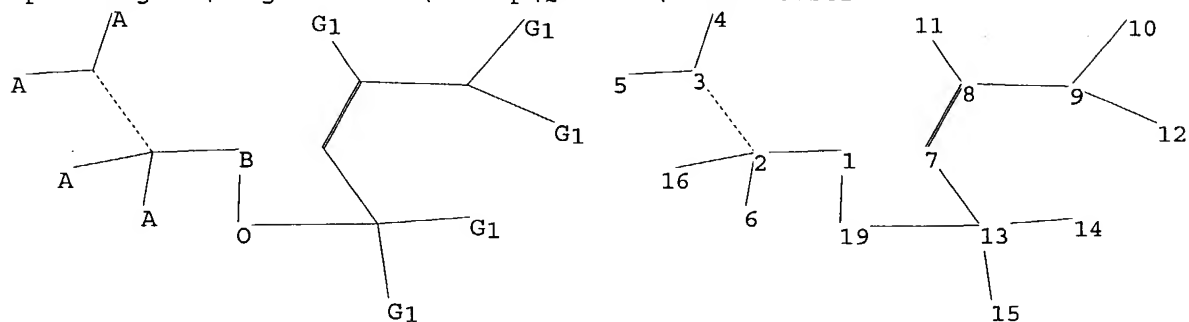
- L22 ANSWER 7 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Palladium-catalyzed borylation and **Suzuki coupling** (BSC) to obtain β -substituted dehydroamino acid derivatives
- L22 ANSWER 8 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI A convenient preparation of dityrosine via Miyaura borylation-**Suzuki coupling** of iodotyrosine derivatives
- L22 ANSWER 9 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI New shelf-stable halo- and alkoxy-substituted pyridylboronic acids and their **Suzuki cross-coupling** reactions to yield heteroarylpyridines
- L22 ANSWER 10 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI B-Alkyl **Suzuki-Miyaura Cross-Coupling** Reactions with Air-Stable Potassium Alkyltrifluoroborates
- L22 ANSWER 11 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Asymmetric Synthesis of an Axially Chiral Antimitotic Biaryl via an Atropo-Enantioselective **Suzuki Cross-Coupling**
- L22 ANSWER 12 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Tandem palladium-catalyzed borylation and **Suzuki coupling** (BSC) to thienocarbazole precursors
- L22 ANSWER 13 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Combined application of organozinc chemistry and one-pot hydroboration-**Suzuki coupling** to the synthesis of amino acids
- L22 ANSWER 14 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Conjugated polymer preparation via **Suzuki-coupling** in emulsion
- L22 ANSWER 15 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Synthesis of (indol-3-yl)heteroaromatics by **Suzuki-Miyaura coupling** and their inhibitory activity in lipid peroxidation
- L22 ANSWER 16 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Development of a 9-borabicyclo[3.3.1]nonane-mediated solid-phase **Suzuki coupling** for the preparation of dihydrostilbene analogs
- L22 ANSWER 17 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Practical Asymmetric Synthesis of a Potent Cathepsin K Inhibitor. Efficient Palladium Removal Following **Suzuki Coupling**
- L22 ANSWER 18 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI The Synthesis of OSU 6162: Efficient, Large-Scale Implementation of a **Suzuki Coupling**
- L22 ANSWER 19 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Process for the catalytic synthesis of biaryls and polymers from aryl compounds via sequential borylation using iridium or rhodium catalysts and arylation (**Suzuki-Miyaura cross-coupling**) using palladium catalysts
- L22 ANSWER 20 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Modular Approach to Novel Chiral Aryl-Ferrocenyl Phosphines by **Suzuki Cross-Coupling**
- L22 ANSWER 21 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Convenient approach to 3,4-diarylisoaxazoles based on the **Suzuki cross-coupling** reaction

- L22 ANSWER 22 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Suzuki cross-couplings** of alkyl tosylates that possess β hydrogen atoms: synthetic and mechanistic studies
- L22 ANSWER 23 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Functionalized Pyridylboronic Acids and Their **Suzuki Cross-Coupling** Reactions To Yield Novel Heteroarylpyridines
- L22 ANSWER 24 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Concave reagents, 37. A facile route to aryl-substituted 1,10-phenanthrolines by means of **Suzuki coupling** reactions between substituted areneboronic acids and halogeno-1,10-phenanthrolines
- L22 ANSWER 25 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Cyclopropylboronic acid: synthesis and **Suzuki cross-coupling** reactions
- L22 ANSWER 26 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI A method for palladium-catalyzed cross-**couplings** of simple alkyl chlorides: **Suzuki** reactions catalyzed by $[\text{Pd}_2(\text{dba})_3]/\text{PCy}_3$
- L22 ANSWER 27 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Generation of Substituted Styrenes via **Suzuki Cross-Coupling** of Aryl Halides with 2,4,6-Trivinylcyclotriboroxane
- L22 ANSWER 28 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Efficient total synthesis of khafrefungin: convergent approach using **Suzuki coupling** under thallium-free conditions toward multigram-scale synthesis
- L22 ANSWER 29 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI A New Synthesis of Butadienyl- and Styrylboronic Esters: Highly Reactive Intermediates for **Suzuki Cross-Coupling**
- L22 ANSWER 30 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Enantiomerically Pure α -Amino Acid Synthesis via Hydroboration-**Suzuki Cross-Coupling**
- L22 ANSWER 31 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Application of the Palladium-Catalyzed Borylation/**Suzuki Coupling** (BSC) Reaction to the Synthesis of Biologically Active Biaryl Lactams
- L22 ANSWER 32 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI The B-alkyl **Suzuki-Miyaura cross-coupling** reaction: development, mechanistic study, and applications in natural product synthesis
- L22 ANSWER 33 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI **Suzuki Cross-Coupling** Reactions of Potassium Alkenyltrifluoroborates
- L22 ANSWER 34 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Short syntheses of 8-substituted 8'-[1-(1'-phenylthio)ferrocenyl]-1,1'-binaphthyls from **Suzuki coupling** reactions. A strategy for generating new chiral ligands and charge-transfer complexes
- L22 ANSWER 35 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
TI Room-Temperature Alkyl-Alkyl **Suzuki Cross-Coupling** of Alkyl Bromides that Possess β Hydrogens
- L22 ANSWER 36 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN

TI **Suzuki** Reaction of a Diarylborinic Acid: One-Pot Preparation and Cross-**Coupling** of Bis(3,5-dimethylphenyl)borinic Acid
 L22 ANSWER 37 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Application of the 'resin-capture-release' methodology to macrocyclization via intramolecular **Suzuki-Miyaura coupling**
 L22 ANSWER 38 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI A general route to pyridine-modified salicylaldehydes via **Suzuki coupling**
 L22 ANSWER 39 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI **Suzuki Cross-Coupling** Reaction of Sterically Hindered Aryl Boronates with 3-Iodo-4-methoxybenzoic Acid Methyl Ester
 L22 ANSWER 40 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Aryl and vinyl cyclopropanes through the in situ generation of B-cyclopropyl-9-BBN and its **Suzuki-Miyaura coupling**
 L22 ANSWER 41 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Cost-efficient synthesis of E2040: Application of **Suzuki-Miyaura coupling** using o-cyanophenylborate.
 L22 ANSWER 42 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Highly Active Palladium Catalysts for **Suzuki Coupling** Reactions
 L22 ANSWER 43 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Preparation of new functionalized hydrocarbon linkers via **Suzuki cross coupling** reaction
 L22 ANSWER 44 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Alkylboranes in the **Suzuki-Miyaura Coupling**: Stereochemical and Mechanistic Studies
 L22 ANSWER 45 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Synthesis of [6.6]Metacyclophane via the **Suzuki Coupling**
 L22 ANSWER 46 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Total synthesis of (-)-epothilone B: an extension of the **Suzuki coupling** method and insights into structure-activity relationships of the epothilones
 L22 ANSWER 47 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI The **Suzuki-Miyaura coupling**: The transmetallation step.
 L22 ANSWER 48 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Zirconocene-Mediated Preparation of 1,3-, 1,4- and 2,3-Dibora-1,3-butadienes: Their Isolation and Characterization and Use in **Suzuki-Miyaura Coupling**
 L22 ANSWER 49 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI Alkynylboranes in the **Suzuki-Miyaura coupling**
 L22 ANSWER 50 OF 50 CAPLUS COPYRIGHT 2004 ACS on STN
 TI trans-Vinylsilanes via **Suzuki-Miyaura coupling**

=>

Uploading C:\Program Files\Stnexp\Queries\10650370.str



chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 19

chain bonds :

1-19 1-2 2-16 2-3 2-6 3-4 3-5 7-13 7-8 8-11 8-9 9-12 9-10 13-14 13-15
13-19

exact/norm bonds :

2-16 2-3 2-6 3-4 3-5 8-11 9-12 9-10 13-14 13-15 13-19

exact bonds :

1-19 1-2 7-13 7-8 8-9

G1:H,A

Match level :

1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 19:CLASS

L1 STRUCTURE UPLOADED

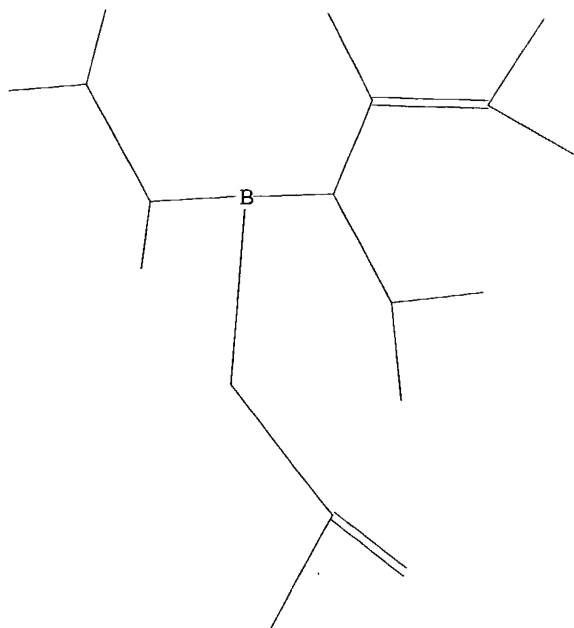
=> que L1

L2 QUE L1

=> d

L2 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.
 L2 QUE ABB=ON PLU=ON L1

=> s l1
 SAMPLE SEARCH INITIATED 13:15:29 FILE 'REGISTRY'
 SAMPLE SCREEN SEARCH COMPLETED - 3 TO ITERATE

100.0% PROCESSED 3 ITERATIONS 0 ANSWERS
 SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
 BATCH **COMPLETE**
 PROJECTED ITERATIONS: 3 TO 163
 PROJECTED ANSWERS: 0 TO 0

L3 0 SEA SSS SAM L1

=> s l1 full
 FULL SEARCH INITIATED 13:15:34 FILE 'REGISTRY'
 FULL SCREEN SEARCH COMPLETED - 22 TO ITERATE

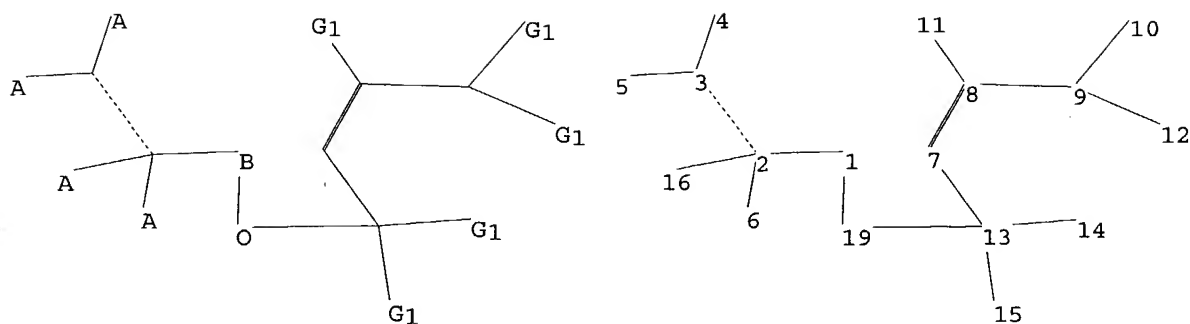
100.0% PROCESSED 22 ITERATIONS 0 ANSWERS
 SEARCH TIME: 00.00.01

L4 0 SEA SSS FUL L1

=>Testing the current file.... screen

ENTER SCREEN EXPRESSION OR (END):end

=>
 Uploading C:\Program Files\Stnexp\Queries\10650370.str



chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 19

chain bonds :

1-19 1-2 2-16 2-3 2-6 3-4 3-5 7-13 7-8 8-11 8-9 9-12 9-10 13-14 13-15 13-19

exact/norm bonds :

2-16 2-3 2-6 3-4 3-5 8-11 9-12 9-10 13-14 13-15 13-19

exact bonds :

1-19 1-2 7-13 7-8 8-9

G1:H,A

Match level :

1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS 9:CLASS

10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 19:CLASS

L5 STRUCTURE UPLOADED

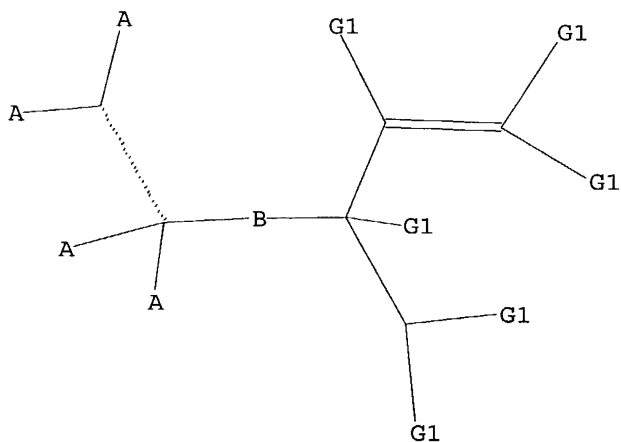
=> que L5

L6 QUE L5

=> d

L6 HAS NO ANSWERS

L5 STR



G1 H,A

Structure attributes must be viewed using STN Express query preparation.
L6 QUE ABB=ON PLU=ON L5

=> s 15

SAMPLE SEARCH INITIATED 13:19:06 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED - 241 TO ITERATE

100.0% PROCESSED 241 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
 BATCH **COMPLETE**

PROJECTED ITERATIONS: 3889 TO 5751
PROJECTED ANSWERS: 0 TO 0

L7 0 SEA SSS SAM L5

=> s 15 full

FULL SEARCH INITIATED 13:19:10 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED - 5050 TO ITERATE

100.0% PROCESSED 5050 ITERATIONS 0 ANSWERS
SEARCH TIME: 00.00.01

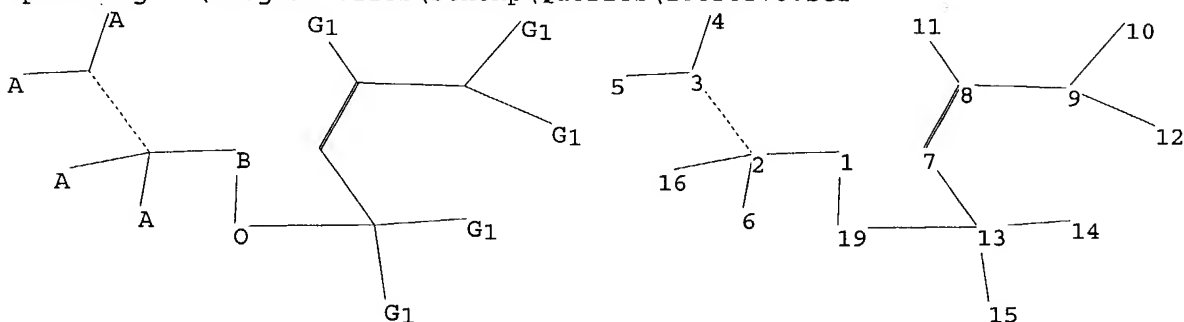
L8 0 SEA SSS FUL L5

=>Testing the current file.... screen

ENTER SCREEN EXPRESSION OR (END):end

=>

Uploading C:\Program Files\Stnexp\Queries\10650370.str



chain nodes :

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 19

chain bonds :

1-19 1-2 2-16 2-3 2-6 3-4 3-5 7-13 7-8 8-11 8-9 9-12 9-10 13-14 13-15
13-19

exact/norm bonds :

2-16 2-3 2-6 3-4 3-5 8-11 9-12 9-10 13-14 13-15 13-19

exact bonds :

1-19 1-2 7-13 7-8 8-9

G1:H,A

Match level :

1:CLASS 2:CLASS 3:CLASS 4:CLASS 5:CLASS 6:CLASS 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 19:CLASS

L9 STRUCTURE UPLOADED

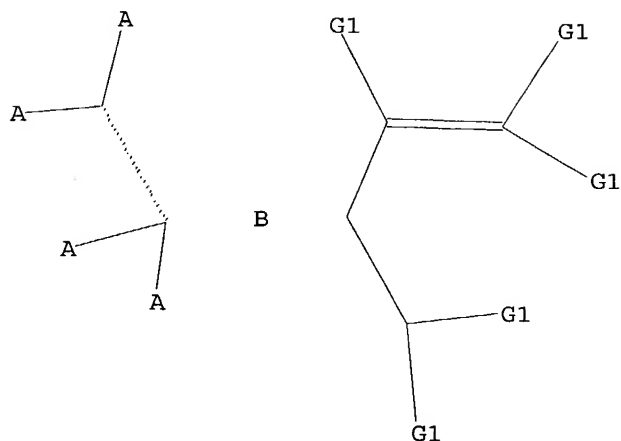
=> que L9

L10 QUE L9

=> d

L10 HAS NO ANSWERS

L9 STR



G1 H,A

Structure attributes must be viewed using STN Express query preparation.

L10 QUE ABB=ON PLU=ON L9

=> s l9

SAMPLE SEARCH INITIATED 13:21:41 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 498 TO ITERATE

100.0% PROCESSED 498 ITERATIONS

0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**

BATCH **COMPLETE**

PROJECTED ITERATIONS: 8622 TO 11298

PROJECTED ANSWERS: 0 TO 0

L11 0 SEA SSS SAM L9

=> s l9 full

FULL SEARCH INITIATED 13:21:45 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 10109 TO ITERATE

100.0% PROCESSED 10109 ITERATIONS

63 ANSWERS

SEARCH TIME: 00.00.01

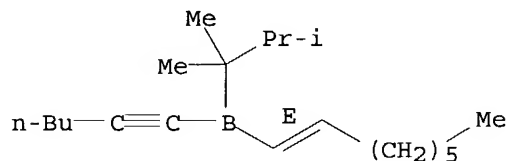
L12 63 SEA SSS FUL L9

=> d scan

L12 63 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN

IN Borane, 1-hexynyl-1-octenyl(1,1,2-trimethylpropyl)-, (E)- (9CI)
 MF C20 H37 B

Double bond geometry as shown.

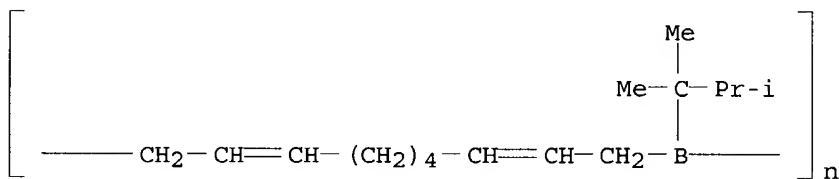


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

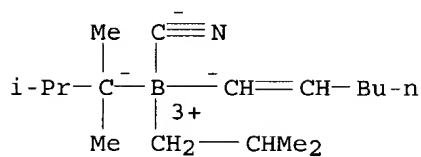
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):10

L12 63 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN
 IN Poly[[1,1,2-trimethylpropyl)borylene]-2,8-decadiene-1,10-diyl] (9CI)
 MF (C16 H29 B)n
 CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINK



L12 63 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN
 IN Borate(1-), (cyano-C)-1-hexenyl(2-methylpropyl)(1,1,2-trimethylpropyl)-, potassium, [T-4-(E)]- (9CI)
 MF C17 H33 B N . K
 CI CCS

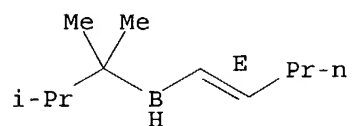


● K⁺

L12 63 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN
 IN Borane, 1-pentenyl(1,1,2-trimethylpropyl)-, (E)- (9CI)

MF C11 H23 B

Double bond geometry as shown.



L12 63 ANSWERS REGISTRY COPYRIGHT 2004 ACS on STN

IN L-Leucinamide, N-(3-carboxy-1-oxopropyl)-L- α -aspartyl-L- α -
glutamyl-2-methyl-L-phenylalanyl-3-methyl-L-valyl-N-[(1R)-1-borono-4-
pentenyl]- (9CI)

SQL 5

MF C40 H61 B N6 O14